Jan. 12, 1932. E. ELLINGSON 1,840,706

DOORKNOB

Filed July 19, 1930

Fig. 1.

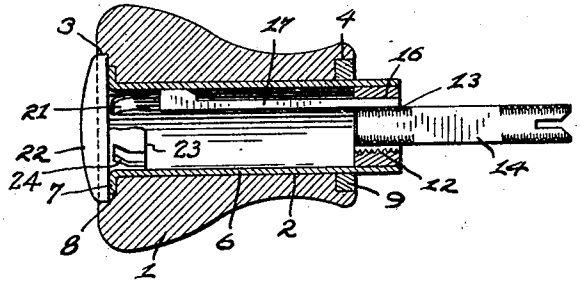


Fig. 2.

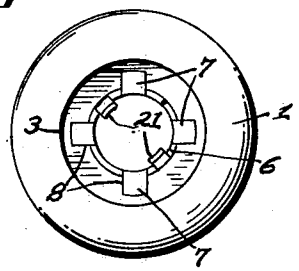


Fig. 3.

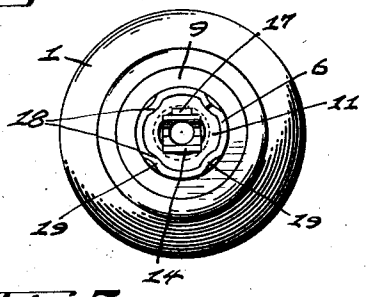


Fig. 4.

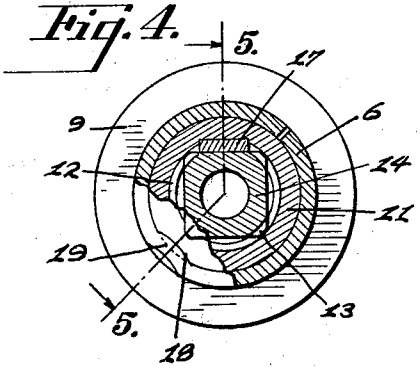
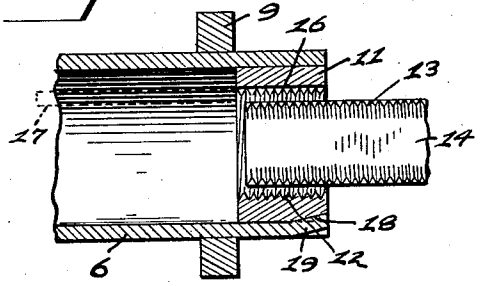


Fig. 5.



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UNITED STATES PATENT OFFICE

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DOORKNOB

Application filed July 19, 1930. Serial No. 469,061.

My invention relates to improvements in door knob construction and mounting means wherein a tubular sleeve is mounted axially through a knob body and provided with means for rigidly securing the sleeve in assembled relation to the knob to prevent relative rotation thereof and arranged to be keyed to a knob spindle in a desired axial adjustment relative thereto.

The primary object of my invention is to provide an improved door knob construction.

Another object is to provide an improved knob construction which will facilitate manufacture and installation.

A further object is to provide an improved knob construction wherein the parts are effectually secured in assembled relation and held against relative rotation.

Another object is to provide improved means for assembling a knob spindle and knob whereby the spindle may be adjusted axially to a desired position relative to the knob and keyed against rotation relative to the knob.

A still further object is to provide an improved device of the character described embodying improved features of construction and arrangement affording increased utility and increased efficiency.

I accomplish these and other objects by means of the improved device disclosed in the drawings forming a part of the present application wherein like characters of reference are used to designate similar parts throughout the specification and drawings, and in which—

Fig. 1 is a longitudinal mid-section of my improved door knob construction;

Fig. 2 is an elevation of the outer end of the knob, the end closing means being removed;

Fig. 3 is an elevation of the inner end of the knob as shown in Fig. 1;

Fig. 4 is an enlarged end elevation, partly in section, of the sleeve and spindle assembly; and

Fig. 5 is a broken sectional view taken upon the line 5—5 of Fig. 4 in the direction indicated, the key being omitted.

Referring to the drawings, the numeral 1 is used to designate in general the body of a door knob having an opening 2 extending axially therethrough and having recesses 3 and 4 formed in the outer and inner ends of the knob respectively around the open ends of the opening 2. The knob body 1 may be of any suitable design and may be formed of any suitable material.

A sleeve designated in general by the numeral 6 is mounted in the opening 2. Lugs 7 are formed upon the outer end of the sleeve 6 to seat within the recesses 8 formed in the back of the recess 3 of the knob body to secure the sleeve against rotation relative to the knob. The opposite end of the sleeve 6 extends outwardly from the knob and is provided with a collar 9 seating within the recess 4 of the knob body. A bushing 11 is mounted in the end of the sleeve 6 adjacent the collar 9. The sleeve 6 is preferably split and the bushing 11 is arranged to form a tight press fit within the end of the sleeve whereby said bushing operates to expand the sleeve within the collar and thereby clamp the sleeve in assembled relation to the knob.

The bushing 11 is provided with an axial opening threaded as at 12 to engage threads 13 formed upon the end of a knob spindle 14. The spindle 14 is preferably square in cross-section, the threads 13 being cut upon the corners only of the spindle. The flat faces of the spindle form key engaging surfaces movable opposite a key-way 16 cut in the bushing 11. A key 17 is inserted through the outer end of the sleeve 6 into the keyway 16 to engage an adjacent flat face of the spindle 14 whereby the spindle is locked against rotation relative to the bushing.

The bushing 11 has a plurality of notches 18 formed in the periphery thereof at the outer end of the bushing. Indents 19 are pressed into the end of the sleeve 6 to engage the notches 18 when the bushing 11 is assembled into the sleeve, thereby effectually securing the bushing within the end of the sleeve and preventing rotation of the bushing relative to the sleeve.

Detents 21 are pressed inwardly from the sleeve wall adjacent the outer end of the sleeve to engage an end closing member 22

to close the outer end of the sleeve 6. The member 22 may be of any desired nature, such as the simple end cap indicated in Fig. 1 of the drawings, or the face plate of lock mechanism mounted within the sleeve 6.

In assembling, the sleeve 6 is inserted through the outer end of the knob and the collar 9 moved onto the inner end of the sleeve to seat in the recess 4. The bushing 11 is then pressed into the inner end of the sleeve to expand said sleeve within the collar and thereby secure the sleeve against longitudinal movement within the knob. The indents 19 are then pressed into the end of the sleeve to engage the notches 18 and thereby prevent rotation of the bushing within the sleeve and hold the several elements in assembled relation.

The spindle 14 is then screwed into the bushing 11, the spindle being advanced along the threads 12 to a desired axially adjusted position. The key 17 is then inserted through the open outer end of the sleeve 6 and into the key-way 16, the spindle 14 being turned to present a flat key engaging face to the inner face of the key whereby the spindle is effectually locked against rotation within the bushing.

The hollow sleeve 6 provides a chamber within the knob to receive locking mechanism of any suitable nature. As such locking mechanism forms no part of the present invention, this mechanism has been omitted from the drawings. Where the provision of locking mechanism is not required, the outer end of the sleeve 6 is covered by means of an end cap 22 seating against the outer end of the knob and provided with an inwardly extending flange 23 having recesses 24 engaged by the spring detents 21 whereby the cap 22 is effectually secured upon the knob. The cap 22 may be pried free from the sleeve to give access to the interior of the sleeve if desired.

Should the knob be broken or for any reason it be desired to replace the knob body, the key 17 may be withdrawn and the knob assembly removed from the spindle. The bushing may then be pressed outwardly from the sleeve and the several parts assembled upon a desired knob body as above described.

The specific details of construction and arrangement as herein illustrated and described represent what I now believe to be the preferred embodiment of my invention. However, I do not wish to be restricted to the precise details illustrated, but desire to avail myself of such modifications thereof as may fall within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. A door knob comprising a knob body having an axially disposed opening therethrough and having recesses formed in the end of the body around the outer end of the opening; a sleeve mounted within the opening; laterally disposed lugs upon the outer end of the sleeve and engaging the recesses in the adjacent end of the knob body to prevent relative rotation of the body and sleeve; a bushing mounted within the inner end of the sleeve; a knob spindle extending axially into the bushing; and a key locking the spindle against rotation within the bushing.

2. A door knob comprising a knob body having an axially disposed opening therethrough and having recesses formed in the end of the body around the outer end of the opening; a sleeve mounted within the opening; laterally disposed lugs upon the outer end of the sleeve and engaging the recesses in the adjacent end of the knob body to prevent relative rotation of the body and sleeve; a bushing mounted within the inner end of the sleeve; a knob spindle extending axially into the bushing; a key locking the spindle against rotation within the bushing; and means to prevent rotation of the bushing within the sleeve.

3. A door knob comprising a knob body having an axially disposed opening therethrough and having recesses formed in the end of the body around the outer end of the opening; a sleeve mounted within the opening; laterally disposed lugs upon the outer end of the sleeve and engaging the recesses in the adjacent end of the knob body to prevent relative rotation of the body and sleeve; a bushing mounted within the inner end of the sleeve; a knob spindle extending axially into the bushing; a key locking the spindle against rotation within the bushing; and indents formed on the inner end of the sleeve and engaging notches in the bushing to prevent rotation of the bushing within the sleeve.

4. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the ends of the body around the axial opening; a sleeve mounted within the opening and provided with means upon the outer end thereof to seat within the recess at the outer end of the body to prevent relative rotation of the body and sleeve; a collar upon the inner end of the sleeve and seating within the adjacent recess of the body; a bushing mounted within the inner end of the sleeve and expanding the sleeve within the collar; interengaging means upon the bushing and sleeve to prevent relative rotation thereof; a knob spindle extending axially into the bushing in axially adjustable relation thereto; and a key insertable through the outer end of the sleeve into engagement with the bushing and spindle to secure the stem against rotation within the bushing in adjusted relation thereto.

5. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the inner and outer ends of the body around the ends of the open-

ing; a split tubular sleeve mounted within the opening and provided with means upon the outer end thereof to seat within the recessed outer end of the body to prevent relative rotation of the body and sleeve; a collar upon the inner end of the sleeve and seating within the recess at the inner end of the knob body; a bushing pressed into the inner end of the sleeve to expand said sleeve into clamping engagement with the collar; a knob spindle threaded into the bushing; and a key insertable into engagement with the spindle and bushing to prevent relative rotation of the spindle within he bushing.

6. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the inner and outer ends of the body around the ends of the opening; a split tubular sleeve mounted within the opening and provided with means upon the outer end thereof to seat within the recessed outer end of the body to prevent relative rotation of the body and sleeve; a collar upon the inner end of the sleeve and seating within the recess at the inner end of the knob body; a bushing pressed into the inner end of the sleeve to expand said sleeve into clamping engagement with the collar; a knob spindle threaded into the bushing; a key insertable into engagement with the spindle and bushing to prevent relative rotation of the spindle within the bushing; and indents formed on the inner end of the sleeve to engage notches formed in the bushing.

7. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the inner and outer ends of the body around the ends of the opening; a split tubular sleeve mounted within the opening and provided with means upon the outer end thereof to seat within the recessed outer end of the body to prevent relative rotation of the body and sleeve; a collar upon the inner end of the sleeve and seating within the recess at the inner end of the knob body; a bushing pressed into the inner end of the sleeve to expand said sleeve into clamping engagement with the collar; a knob spindle threaded into the bushing; a key insertable into engagement with the spindle and bushing to prevent relative rotation of the spindle within the bushing; and means detachably mounted upon the outer end of the sleeve to normally cover said outer end.

8. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the outer end of the body around the axial opening; a sleeve mounted within the opening and provided with means upon the ends thereof and seating within the recesses at the ends of the body to hold the same in assembled relation and to prevent relative rotation of the sleeve and body; a bushing mounted within the inner ends of the sleeve and having a key-way; a knob spindle threaded into the bushing and provided with a plurality of key engaging surfaces; and a key insertable from the outer end of the knob into engagement with the key-way and a key engaging surface of the spindle to prevent relative rotation of the bushing and spindle.

9. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the ends of the body around the axial opening; a sleeve mounted within the opening and provided with means upon the ends thereof and seating within the recesses at the ends of the body to hold the same in assembled relation and to prevent relative rotation of the sleeve and body; a bushing mounted within the inner end of the sleeve and having a key-way; a knob spindle threaded into the bushing and provided with a plurality of key engaging surfaces; a key insertable from the outer end of the knob into engagement with the key-way and a key engaging surface of the spindle to prevent relative rotation of the bushing and spindle; spring detents within the sleeve adjacent the outer end thereof; and a cap engaging said detents and seating upon the adjacent end of the knob to normally cover the outer end of the sleeve.

10. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the ends of the body around the axial opening; a sleeve mounted within the opening and provided with means upon the ends thereof and seating within the recesses at the ends of the body to hold the same in assembled relation and to prevent relative rotation of the sleeve and body; a bushing mounted within the inner end of the sleeve and having a key-way; a knob spindle threaded into the bushing and provided with a plurality of key engaging surfaces; a key insertable from the outer end of the knob into engagement with the key-way and a key engaging surface of the spindle to prevent relative rotation of the bushing and sleeve; and spring detents inwardly struck from the wall of the sleeve to engage end closing means applied upon the outer end of the sleeve.

11. In a door knob construction, the combination with a sleeve extending axially through a knob body, of a collar mounted over one end of the sleeve and seating upon the adjacent end of the knob body; and a bushing mounted within the end of the sleeve and expanding the sleeve within the collar.

12. In a door knob construction, the combination with a sleeve extending axially through a knob body, of a collar mounted over one end of the sleeve and seating upon the adjacent end of the knob body; a bushing mounted within the end of the sleeve and expanding the sleeve within the collar; and a

knob spindle adjustably keyed into the bushing.

13. In a door knob construction, the combination with a sleeve extending axially through a knob body, of a collar mounted over one end of the sleeve and seating within a recess in the adjacent end of the knob body; a bushing mounted within the end of the sleeve and expanding the sleeve within the collar; a knob spindle threaded into the bushing; and a key insertable into a key-way formed in the bushing and engaging the spindle.

14. In a door knob construction, the combination with a sleeve extending axially through a knob body, of a bushing mounted within the inner end of the sleeve; a knob spindle provided with flat key engaging surfaces threaded into the bushing; and a key insertable into a key-way formed in the bushing and engaging a surface of the spindle to secure the spindle against rotation within the knob in a desired axially adjusted position.

15. In a door knob construction, the combination with a sleeve extending axially through a knob body, of a bushing mounted within the inner end of the sleeve; and indents formed in the sleeve and engaging notches formed in the bushing to secure the bushing against rotation relative to the sleeve.

16. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the outer end of the body around the end of the axial opening; a sleeve mounted within the opening and provided with laterally extending lugs upon the outer end thereof to seat within the recesses in the adjacent end of the body to hold the sleeve against rotation within the opening relative to the body.

17. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the outer end of the body around the end of the axial opening; a sleeve mounted within the opening and provided with laterally extending lugs upon the outer end thereof to seat within the recesses in the adjacent end of the body to hold the sleeve against rotation within the opening relative to the body; and means mounted upon the opposite end of the sleeve and engaging the inner end of the body, said means cooperating with the lugs to prevent longitudinal movement of the sleeve relative to the knob body.

18. A door knob comprising a knob body having an axial opening therethrough and having recesses formed in the outer end of the body around the end of the axial opening; a sleeve mounted within the opening and provided with laterally extending lugs upon the outer end thereof to seat within the recesses in the adjacent end of the body to hold the sleeve against rotation within the opening relative to the body; and means mounted upon the opposite end of the sleeve and engaging the inner end of the body, said means cooperating with the lugs to prevent longitudinal movement of the sleeve relative to the knob body; a collar mounted upon the opposite end of the sleeve and seating against the inner end of the body, the knob body being clamped between the collar and the lugs to hold said knob body and sleeve against relative longitudinal and rotative movement.

In witness whereof, I hereunto set my signature.

ELLING ELLINGSON.